

Work Order ID 55885

February 3, 2010 3:07:41 PM

Page 1

PRELIMINARY ISSUE

Item ID: D4026-1

Accept

Revision ID:

Item Name: Fuel Gauge

Start Date: 2/03/10 Start Qty: 2.00

Required Date: 2/03/10 Req'd Qty: 2.00

Reference:

Approvals: Process Plan:

QC:

Date:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Cust Item ID:

Customer:

Setup Start

Stop

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
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D4026	PA1
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0.00

0.00

0.00

0.00

0.00

0.00

100



Purchasing

Purchasing

Memo

Issue P.O P/N: FL-100-R 01/13/13
possible supplier Aircraft Spruce

✓ 100203

110



Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

Memo

Rec'd 13

710

120



QC

Quality Control

QC6- Inspect dimensions to drawing

Memo

8/10/2008

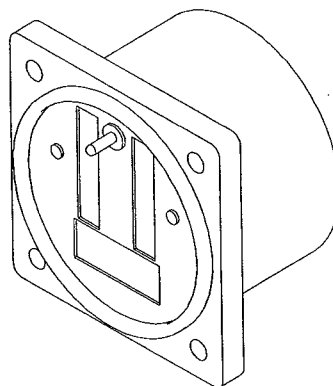
02

DART AEROSPACE PART NUMBER	JOHN CAMERON AVIATION PART NUMBER
D4026-1	FL-100-R-JCA

SPECIFICATION CONTROL DRAWING

REFERENCE

REFERENCE ONLY



WJ
55885

DART PART NUMBER	SUPPLIER	SUPPLIER PART NUMBER	OPERATING TEMPERATURE	POWER CONSUMPTION	SENSORS SUPPORTED	OPERATING VOLTAGE
D4026-1	AEROSPACE LOGIC INC.	FL-100-R	-15°C TO +55°C 5°F TO 131°F	450 mA MAX (DAY OPERATION) 60mA MIN (NIGHT OPERATION)	RESISTIVE SENSORS OF ALL TYPES R _{MAX} = 300 OHMS R _{MIN} = 0 OHMS	6 - 32 VDC

D4026-1 FUEL GAUGE

PRELIMINARY ISSUE

10.01.19

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

DESIGN DRAWN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. REV. PA1
MFG. APPR.		D4026 SHEET 2 OF 2
APPROVED		TITLE SCALE
DE APPR.		FUEL GAUGE NTS
DATE	10.01.19	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD



NO NONSENSE WARRANTY

Our warranty policy is simple It is even written in plain English!

Please read it BEFORE DOING ANYTHING WITH YOUR NEW INSTRUMENT!

**If you require technical support when installing your instrument please call
our Technical Support department directly on
416-628-0725**

We will:

- Repair or replace (at our discretion) any instrument which becomes defective within a period of 12 (twelve) months of manufacture date. You will pay for the shipping costs to return the instrument to us and we will pay for the shipping costs to return the instrument to you;
- Replace all instruments that fail out of warranty for a flat rate of 50% of the cost of a new instrument, at the time of the failure.

We are not:

- Liable for any costs associated with the installation or removal of any of our instruments, irrespective of the cause;
- Liable for any misuse or non-use of the instrument in whatever form.

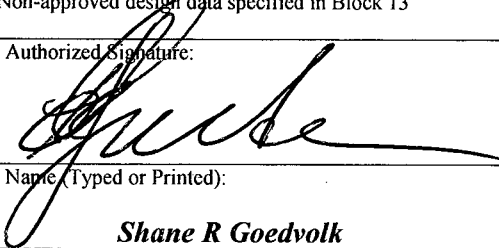
We will not:

- Repair or replace your instrument free of charge, under warranty, if it has not been installed by an appropriately licensed person.

**If you do not agree with ANY of the above statements, return
your new instrument to us immediately for a FULL refund LESS
shipping costs.**

**ALL RETURNS REQUIRE RETURN MATERIAL AUTHORIZATIONS
(RMA). WE DO NOT ACCEPT RETURNS WITHOUT RMA
NUMBERS. CALL 416-628-0725 FOR AUTHORIZATION.**

Ver. 1.3

1. Approving National Aviation Authority/Country: Transport Canada		2. AUTHORIZED RELEASE CERTIFICATE TCCA 24-0078			3. Form Tracking Number: 4667	
4. Approved Organization Name and Address: Aerospace Logic Inc. 180 James Street South, Suite 205, Hamilton, Ontario, L8P 4V1, CANADA					5. Work Order/Contract/Invoice Number: 2367	
6. Item:	7. Description	8. Part Number:	9. Eligibility: *	10. Quantity	11. Serial Number:	12. Status/Work:
1	Dual Fuel Level Indicator for Resistive Senders (0 - 300Ω)	FL-100-R	N/A (Appliance)	1	ASL0004667	MANUFACTURED
13. Remarks: TSO C55, Canadian STC # SA03-56, FAA STC # ST01700NY						
14. Certifies the items identified above were manufactured in conformity to: <input checked="" type="checkbox"/> Approved design data and are in condition for safe operation <input type="checkbox"/> Non-approved design data specified in Block 13			19. <input type="checkbox"/> CAR 571.10 Maintenance Release <input type="checkbox"/> Other regulations specified in Block 13 Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with CAR571			
15. Authorized Signature: 		16. Certificate/Approval Ref No.: 1 / 52-03	20. Authorized Signature: N/A		21. Certificate/Approval Ref No.: N/A	
17. Name (Typed or Printed): Shane R Goedvolk		18. Date (dd/mm/yyyy): 16 January 2010	22. Name (Typed or Printed): N/A		23. Date (dd/mm/yyyy): N/A	
User/Installer Responsibilities						
1. This document does not constitute authority to install the part. 2. Where the installer works in accordance with the national regulations of an airworthiness authority other than the authority specified in Block 1, the installer must ensure that his/her airworthiness authority accepts products or maintenance from the airworthiness authority specified in Block 1. 3. Statements 14 and 19 do not constitute installation certification. In all cases, the aircraft technical record must contain an installation certification issued in accordance with the national regulations of the state registry, before the aircraft may be flown.						

* Installer must cross-check edibility with approved data.



AUTHORIZATION TO USE STC #SA03-56 AND/OR STC #ST01700NY

Aerospace Logic Inc. hereby authorizes the legal owner of instrument serial number

ASL004667

the use of either Canadian STC #SA03-56 and/or USA STC #ST01700NY for the installation of this instrument into a certified aircraft.

Photocopies or any other reproduction of this authorization are NOT authorization for use of the STC.



Shane R Goedvolk
p/p Aerospace Logic Inc.

PTU Ver. 1.4

Aerospace Logic Inc.
180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA
Tel 416-628-0725 | Fax 416-352-5854
www.aerospacelogic.com

United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

IMPORT

Number ST01700NY

This certificate issued to
Aerospace Logic Inc.
43-3150 Ridgeway Drive
Mississauga, Ontario
L5L 5R5 Canada

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23/3 of the Federal Aviation/Civil Aviation Regulations.

Original Product -- Type Certificate Number : * See attached FAA Approved Model List (AML) number ST01700NY for list of approved airplane models, and applicable installation instructions.
Make :
Model :

Description of Type Design Change:

1. Installation of any of the following Aerospace Logic aircraft instruments: EGT-100 Exhaust Gas Temperature Indicator, CHT-100 Cylinder Head Temperature Indicator, FL-100 Dual Fuel Level Indicator, FP-100 Fuel Pressure and Ammeter Indicator, OL-100 Oil Pressure and Temperature Indicator, and VA-100 Voltmeter and Ammeter Indicator in accordance with Aerospace Logic Instruments Inc. document # STC-100 Ver. 1.4 dated June 10, 2003.

(Continued on Page 2 of 2)

Limitations and Conditions :

1. The Aerospace Logic Instruments Inc. installation must be maintained in accordance with Aerospace Logic Instruments Inc. Instructions for Continued Airworthiness document ICA-100 Ver. 1.0 Transport Canada accepted June 10, 2003.
2. A copy of this certificate and the FAA Approved Model List (AML) No. ST01700NY, amended November 2, 2004, or later FAA approved revisions, must be maintained as part of the permanent records for the modified aircraft.
3. Compatibility of this design change with previously approved modifications must be determined by the installer.
4. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: June 11, 2003

Date reissued: November 2, 2004

Date of issuance: July 08, 2003

Date amended: November 2, 2004



By direction of the Administrator

[Signature]
(Signature)

Vito A. Pulera
Manager
New York Aircraft Certification Office

(Title)

United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

IMPORT

Number ST01700NY

Date of Amendment: November 2, 2004

Limitations and Conditions (continued):

5. **Service and Operating Information:**

Service and repair instructions (bulletins, letters, etc.), the structural repair manual, aircraft flight manual and overhaul and maintenance manuals which contain a statement that the document is Transport Canada approved are accepted by the FAA and are considered as FAA approved. These approvals pertain to the type design only.

...END...

FAA APPROVED MODEL LIST (AML) NO. ST01700NY

AEROSPACE LOGIC INSTRUMENTS

Original Issue Date: July 8, 2003

Amended Date: November 2, 2004

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	INSTALLATION INSTRUCTIONS		AFM SUPPLEMENT NUMBER AND DATE	AML AMENDMENT DATE
					NUMBER	REVISION NO. AND DATE		
1.	Aeronca	C-3, PC-3	A-396	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
2.	Aeronca	50-TC, 50-TL, 60-TF, 65-TAF, 65-TAL, 65-TC, 65-TF, 65-TL, YO-58	A-728	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
3.	Aeronca	O-58-A, O-58B, SO-58B	A-751	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
4.	Aeronca	1 Polm, 1 POSM, C-2 Scout, C-2 Standard, PC-2	ATC 351	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
5.	Aeronca	LA, LB	ATC 596	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
6.	Aeronca	LC, LCS	ATC 614	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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7.	Aeronca	50-M, KM	TC 676	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
8.	Beech Aircraft Corp	18A, S18A	TC 630	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
9.	Beech Aircraft Corp	18D, A18A, A18D, S18D, SA18A, SA18D	A-684	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
10.	Raytheon Aircraft Co.	19A, B19, M19A, 23, A23, A23-19, A23-24, B23, C23, A24, A24R, B24R, C24R, A23A	A1CE	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
11.	Raytheon Aircraft Co.	35-33, 35-A33, 35-B33, 35-C33, 35-C33A, E33, E33A, E33C, F33, F33A, F33C, G33, H35, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC	3A15	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
12.	Bellanca/Alexandria	14-12F-3	TC 745	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	

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13.	Bellanca/ Alexandria	14-13, 14-13-2, 14-13-3, 14-13-3W	A-773	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
14.	Bellanca/ Alexandria	17-30A, 17-31, 17-31ATC	A18CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
15.	Bellanca/ Alexandria	14-19, 14-19-2, 14-19-3, 17-30, 17-31, 17-31TC	1A3	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
16.	Bellanca Aircraft	CH-300 Pacemaker	ATC 129	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
17.	Bellanca Aircraft	CH-400 Skyrocket	ATC 319	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
18.	Bellanca Aircraft	300-W Pacemaker	ATC 328	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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19.	Bellanca Aircraft	CH6, CH8	ATC 47	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
20.	Bellanca Aircraft	E Pacemaker	ATC 476	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
21.	Bellanca Aircraft	F Skyrocket	TC 2-475	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
22.	Bellanca Aircraft	Pacemaker 31-42	TC 578	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
23.	Bellanca Aircraft	14-9, 14-9L	TC 716	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
24.	Cessna Aircraft	120, 140	A-768	CAR 4a	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	

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25.	Cessna Aircraft	140A	5A2	Landplane – CAR 3 Skiplane - CAR 4a Seaplane – CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
26.	Cessna Aircraft	150, A,B,C,D,E,F,G,H,J,K,L,M, A150L, A150M, 152, A152, A150K	3A19	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
27.	Cessna Aircraft	170, 170A, 170B	A-799	CAR 3	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	
28.	Cessna Aircraft	172, A,B,C,D,E,F,G,H,I,K,L,M,N,P,Q	3A12	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
29.	Cessna Aircraft	172R, 172S	3A12	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
30.	Cessna Aircraft	175,175A, 175B, 175C, P172D, R172E, R172F, R172G, R172H, R172J, R172K, 172RG	3A17	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	

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31.	Cessna Aircraft	177, 177A, 177B	A13CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
32.	Cessna Aircraft	177RG	A20CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
33.	Cessna Aircraft	336	A2CE	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
34.	Cessna Aircraft	180,A,B,C,D,E,F,G,H,J,K	5A6	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
35.	Cessna Aircraft	182, A,B,C,D,E,F,G,H,J,K,L,M,N,P,Q, R,R182, TR182, T182	3A13	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
36.	Cessna Aircraft	182S, 182T, T182T	3A13	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	

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37.	Cessna Aircraft	185, A,B,C,D,E,F, A185E, A185F	3A24	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
38.	Cessna Aircraft	320, 335, 340, 320-1, 320A, 320B, 320C, 320D, 320E, 320F, 340A	3A25	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
39.	Cessna Aircraft	188, 188A, 188B, A188, A188A, A188B, T188C	A9CE	Restricted – FAR 21 Normal – FAR 23	See Notes 1-6 for installation of any of the identified indicators	See Notes 1-6 for installation of any of the identified indicators.	N/A	
40.	Cessna Aircraft	190, 195, 195A, 195B	A-790	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
41.	Cessna Aircraft	206, P206, A,B,C,D,E, U206, A,B,C,D,E,F,G, TP206A,B,C,D,E, TU206A,B,C,D,E,F,G	A4CE	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
42.	Cessna Aircraft	C-38	TC668	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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43.	Cessna Aircraft	206H, T206H	A4CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
44.	Cessna Aircraft	207, 207A, T207, T207A	A16CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
45.	Cessna Aircraft	T303	A34CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
46.	Cessna Aircraft	337, 337A, 337B, 337C, 337D, 337E, 337F, 337G, 337H, M337B, P337H, T337B, T337C, T337D, T337E, T337F, T337G, T337H, T337H-SP	A6CE	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
47.	Cessna Aircraft	210, A,B,C,D,E,F,G,H,J,K,L,M,N,R, T210F,G,H,I,K,L,M,N,R, 210-5, 210-5A, P120N, P210R	3A21	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
48.	Cessna Aircraft	310, 310A, 310B, 310C, 310D, 310E, 310F, 310G, 310H, 310I, 310J, 310J-1, 310K, 310L, 310Q, 310N, 310P, 310R, E310H, E310J, T310P, T310Q, T310R	3A10	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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49.	Cessna Aircraft	321	3A11	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
50.	Cirrus Design Corporation	SR20, SR22	A00009CH	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
51.	Commander Aircraft	112, 112B, 112TC, 112TCA, 114, 114A, 114B, 114TC	A12SO	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
52.	Diamond Aircraft	DA20-A1, DA20-C1	TA4CH	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
53.	Diamond Aircraft	DA40	A47CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
54.	Global Amphibians (Lake)	Colonial C-1, Colonial C-2, Lake LA-4, Lake LA-4A, Lake LA-4P, Lake LA-4-200, Lake Model 250	1A13	CAR 3 Lake Model 250 – FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	

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					NUMBER	REVISION NO. AND DATE		
55.	Lancair Company	LC40-550FG, LC42-550FG	A00003SE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
56.	Luscombe Aircraft Corp.	11A, 11E	A-804	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
57.	Luscombe Aircraft Corp.	Luscombe Phantom 1, Luscombe Phantom 1S	TC 552	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
58.	Luscombe Aircraft Corp.	Luscombe 4	TC 687	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
59.	Maule	Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4-180C, M-4-180S, M- 4-180T, M-4-210, M-4-210C, M- 4-210S, M-4-210T, M-5-180C, M- 5-200, M-5-210C, M-5-210TC, M-5-220C, M-5-235C, M-6-180, M-6-235, MX-7-180, MX-7-420, MX-7-180AC, M-7-235A, M-7- 235B, M-7-235C, M-8-235, MT- 7-235, MX-7-160, MX-7-180A, MX-7-180B, MX-7-180C, MXT- 7-160, MXT-7-180, MXT-7-180A, M-7-260, M-7-260C, MT-7-260, MX-7-160C	3A23	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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60.	Mooney	M20, A,B,C,D,E,F,G,J,K,L,M,R,S	2A3	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
61.	Mooney	M22	A6SW	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
62.	Pilatus Aircraft Ltd.	PC-6, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6-H1, PC-6-H2	7A15	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
63.	Piper Aircraft Corporation	PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250	1A10	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
64.	Piper Aircraft Corporation	J-3	ATC 660	Aero Bulletin 7A	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	
65.	Piper Aircraft Corporation	PA-16, PA-16S	1A1	CAR 3	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	

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66.	Piper Aircraft Corporation	PA-30, PA-39, PA-40	A1EA	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
67.	Piper Aircraft Corporation	J3C-40, J3C-50, J3C-50S, J3C-65, J3C-65S, PA-11, PA-11S	A-691	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
68.	Piper Aircraft Corporation	J3F-50, J3F-50S, J3F-60, J3F-60S, J3F-65, J3F-65S,	A-692	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
69.	Piper Aircraft Corporation	J3L, J3L-65, J3L-65S, J3L-S	A-698	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
70.	Piper Aircraft Corporation	J4, J4A, J4A-S	A-703	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
71.	Piper Aircraft Corporation	J4E	A-740	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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					NUMBER	REVISION NO. AND DATE		
72.	Piper Aircraft Corporation	PA-15	A-800	CAR 4a	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
73.	Piper Aircraft Corporation	PA-17	A-805	CAR 3	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	
74.	Piper Aircraft Corporation	PA-18, PA-18S, PA-18 "105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125", PA-18S "125", PA-18AS "125", PA-18 "135", PA-18A "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18AS "150", PA-19, PA-19S, PA-18S "135", PA-18S "150"	1A2	CAR 3	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
75.	Piper Aircraft Corporation	PA-20, PA-20S, PA-20 "115", PA-20S "115", PA-20 "135", PA-20S "135"	1A4	CAR 3	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	
76.	Piper Aircraft Corporation	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160	1A6	CAR 3	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	

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					NUMBER	REVISION NO. AND DATE		
77.	Piper Aircraft Corporation	PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250	1A10	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
78.	Piper Aircraft Corporation	PA-24, PA-24-250, PA-24-260, PA-24-400	1A15	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
79.	Piper Aircraft Corporation	PA-28-140, PA-28-150, PA-28-160, PA-28-235, PA-28S-160, PA-28S-180, PA-28R-180, PA-28R-200, PA-28-151, PA-28-161, PA-28-181, PA-28R-201, PA-28R-201T, PA-28-236, PA-28RT-201, PA-28RT-201T, PA-28-201T	2A13	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
80.	Piper Aircraft Corporation	PA-32-260, PA-32-300, PA-32S-300, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301(SP), PA-32R-301(HP), PA-32-301, PA-32-301T, PA-32R-301T, PA-32-301FT, PA-32-301XTC	A3SO	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
81.	Piper Aircraft Corporation	PA-34-200, PA-34-200T	A7SO	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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					NUMBER	REVISION NO. AND DATE		
82.	Piper Aircraft Corporation	PA36-285, PA-36-300, PA-36-375	A9SO	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
83.	Piper Aircraft Corporation	PA-38-112	A18SO	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	
84.	Piper Aircraft Corporation	PA-44-180, PA-44-180T	A19SO	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
85.	Piper Aircraft Corporation	PA-31, PA-31-300, PA-31-325, PA-31-350	A20SO	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
86.	Piper Aircraft Corporation	PA-46-310P, PA-46-350P	A25SO	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
87.	Piper Aircraft Corporation	PA-18A, PA-18A "135", PA-18A "150"	AR-7	CAR 8	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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88.	Piper Aircraft Corporation	Cub E-2	ATC 455	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
89.	Piper Aircraft Corporation	Cub F-2	ATC 525	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
90.	Piper Aircraft Corporation	J-2	ATC 595	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
91.	Piper Aircraft Corporation	J-3	ATC 660	Aero Bulletin 7A	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	See Notes 1-3, 5 and 6 for installation of any of the identified indicators.	N/A	
92.	Piper Aircraft Corporation	J3P	TC 695	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
93.	Piper Aircraft Corporation	J4B	TC 708	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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94.	Piper Aircraft Corporation	J4F	TC 721	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
95.	Raytheon Aircraft Co.	56TC, 58, 58A, 95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B, 95-C55, 95-C55A, A56TC, B95, B95A, D55, D55A, D95A, E55, E55A, E95	3A16	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
96.	Raytheon Aircraft Co.	A45, D45	5A3	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
97.	Raytheon Aircraft Co.	50, B50, C50, D50, D50A, D50B, D50C, D50E, D50E-5990, E50, F50, G50, H50, J50	5A4	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
98.	Raytheon Aircraft Co.	35,35R, A35, B35, C35, D35, E35, F35, G35	A-777	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
99.	Raytheon Aircraft Co.	60 (Duke), A60, B60	A12CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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100.	Raytheon Aircraft Co.	58P, 58PA, 58TC, 58TCA	A23CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
101.	Raytheon Aircraft Co.	76	A29CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
102.	Raytheon Aircraft Co.	77	A30CE	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
103.	Reims Aviation	Cessna F 337G, Cessna FT337GP	A23EU	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
104.	Reims Aviation	Reims-Cessna F182P, Reims-Cessna F182Q, Reims-Cessna FR182	A42EU	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
105.	Reims Aviation	Cessna F150G, Cessna F150H, Cessna F150J, Cessna F150K, Cessna F150L, Cessna F150M, Cessna F152, Cessna FA150L, Cessna FA152, Cessna FRA150L, Cessna FRA150M	A13EU	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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106.	Reims Aviation	Cessna F337E, Cessna F337F, Cessna F337H, Cessna FT337E, Cessna FT337F, Cessna FT337HP	A23EU	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
107.	Reims Aviation	Cessna F177RG	A26EU	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
108.	Reims Aviation	Cessna F172D, Cessna F172E, Cessna F172F, Cessna F172G, Cessna F172H, Cessna F172K, Cessna F172L, Cessna F172M, Cessna F172N, Cessna F172P	A4EU	CAR 10	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
109.	Socata-Groupe Aerospatiale	MS 880B, MS 885, MS 892A-150, MS 892E-150, MS 893A, MS 893E, MS 894A, MS 894E, Rallye 100S, Rallye 150ST, Rallye 150T, Rallye 235C, Rallye 235E	7A14	CAR 10	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
110.	Socata-Groupe Aerospatiale	TB 10, TB 20, TB 200, TB 21, TB 9	A-153	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
111.	Socata-Groupe Aerospatiale	GA-7	A-231	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

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112.	Sierra Hotel Aero, Inc. (Navion)	Navion, Navion (L-17A), Navion A (L-17B), Navion A, Navion B, Navion D, Navion E, Navion F, Navion G, Navion H	A-782	CAR 3	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
113.	Vulcanair S.p.A.	P 68 "Observer", P 68C, P 68C-TC, P 68, P 68B, P 68 "Observer 2", P68TC "Observer"	A31EU	FAR 23	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004
114.	Zenith Aircraft Corp.	Z-6-A	TC 2-269	Aero Bulletin 7A	See Notes 1-6 for installation of any of the identified indicators.	See Notes 1-6 for installation of any of the identified indicators.	N/A	Nov. 2, 2004

Note 1: For installation of EGT-100 Exhaust Gas Temperature Indicator, refer to EGT-100 Operations and Installation Manual ASL000001 dated June 5, 2003 Ver. 1.9

Note 2: For installation of CHT-100 Cylinder Head Temperature Indicator, refer to CHT-100 Operations and Installation Manual ASL000002 dated June 5, 2003 Ver. 1.9

Note 3: For installation of FL-100 Dual Fuel Level Indicator, refer to FL-100 Operations and Installation Manual ASL000004 dated June 6, 2003 Ver. 1.9

Note 4: For installation of FP-100 Fuel Pressure and Ammeter Indicator, refer to FP-100 Operations and Installation Manual ASL000008 dated June 6, 2003 Ver. 1.2

Note 5: For installation of OL-100 Oil Pressure and Temperature Indicator, refer to OL-100 Operations and Installation Manual ASL000003 dated June 5, 2003 Ver. 1.3

Note 6: For installation of VA-100 Voltmeter and Ammeter Indicator, refer to VA-100 Operations and Installation Manual ASL000009 dated June 6, 2003 Ver. 1.1

FAA Approved: 

Vito A. Pulera, Manager
New York Aircraft Certification Office

Original Issue Date: July 8, 2003

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INSTALLATION OF AEROSPACE LOGIC INSTRUMENTS

Document # STC-100

Note: Any one or combination of any of the following instruments is permissible for installation, including the installation of all instruments.

Installation of EGT-100 Series Instrument

Install in accordance with **EGT-100 Operations and Installation Manual Ver. 1.9** or later Transport Canada Civil Aviation approved version.

Installation of CHT-100 Series Instrument

Install in accordance with **CHT-100 Operations and Installation Manual Ver. 1.9** or later Transport Canada Civil Aviation approved version.

Installation of FL-100 Series Instrument

Install in accordance with **FL-100 Operations and Installation Manual Ver. 1.9** or later Transport Canada Civil Aviation approved version.

Installation of OL-100 Series Instrument

Install in accordance with **OL-100 Operations and Installation Manual Ver. 1.3** or later Transport Canada Civil Aviation approved version.

Installation of FP-100 Instrument

Install in accordance with **FP-100 Operations and Installation Manual Ver. 1.2** or later Transport Canada Civil Aviation approved version.

Installation of VA-100 Instrument

Install in accordance with **VA-100 Operations and Installation Manual Ver. 1.1** or later Transport Canada Civil Aviation approved version.





Instructions for Continued Airworthiness

For

Aerospace logic Instruments

- EGT-100 Series and all variants
- CHT-100 Series and all variants
- FL-100-R and FL-100-5
- OL-100 Series and all variants
- FP-100 and all variants
- VA-100 and all variants

1. General:

The specific instruments are installed in the aircraft instrument panel.

Senders, probes and transducers are installed in locations as specified in the relative approved installation manuals.

2. Maintenance Instructions:

Maintenance of the specific instruments and associated senders, probes and transducers should be accomplished during routine annual or 100 hour inspections in accordance with applicable airworthiness standards.

No additional maintenance requirements are specified after the installation. Maintenance shall be on a "Condition Monitoring" basis. (Ref.: FAA Procedures 8310.4, paragraph 3033).



Aerospace Logic Inc.

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www.aerospacelogic.com

Document ICA-100 Ver. 1.0

FL-100-R Installation Checklist and Guide

WARNING

**YOU MUST READ THIS DOCUMENT
AND PERFORM THE TASKS LISTED
BEFORE INSTALLING THE FL-100-R
INSTRUMENT**

READ THIS FIRST

Aerospace Logic Inc.

180 James Street South, Suite 205, Hamilton, ON, L8P 4V1, CANADA

Tel 416-628-0725 | Fax 416-352-5854

www.aerospacelogic.com

FL-100-R Installation Checklist and Guide – Ver. 1.1 – September 8, 2004

Are You Qualified to Install this Instrument?

The installation of this instrument will require a thorough understanding of the aircraft fuel sender and tank systems as well as sufficient knowledge of the aircraft electrical system to perform the necessary tasks. It will also require tools and equipment commonly found in an appropriately licensed maintenance facility.

DO NOT INSTALL THIS INSTRUMENT IF YOU DO NOT HAVE THIS KNOWLEDGE AND/OR NECESSARY EQUIPMENT

General:

The FL-100-R instrument series requires that the aircraft fuel senders and associated wiring be in correct operating condition as defined by the manufacturer and within tolerances specified by both the manufacturer and the FAA.

Prior to starting the installation of the FL-100-R instrument you **MUST** confirm the correct operation of these systems.

NOTE

The fuel senders do not have to be in a perfect working condition but they MUST meet the operational specifications and regulations as required for the specific aircraft.

This brief document will assist you in preparing the aircraft for the installation of the instrument. By following these procedures you will save many hours of work and frustration plus you will find that the installation and calibration of the instrument will be within the specific time allocations.

In the pages that follow we will outline the steps to be taken ***prior to the installation and calibration of this instrument.***

On the last page of this document you will find a checklist for the installation. We encourage you to complete the necessary sections as some of the information will be required as part of the installation. Other sections can also be used to assist you in the location of problems with the fuel indicating system should they exist.

WARNING:

This document is not an approved or controlled document. All items in this document refer to normal maintenance practices and/or regulations. These sources take precedent over any and all statements. When performing any of these actions refer to the specific manufacturing procedures and/or regulatory requirements.

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Time Requirements

The following are realistic time estimates for carrying out the various tasks associated with the installation of the instrument. They are based upon a large cross-section of aircraft installations and where procedures are followed correctly will yield accurate estimates. Where repair work is required, you must budget times and costs for these tasks. Times are based on all systems being in an operational condition.

By performing the tasks in the order listed, costs will be kept to a minimum and any additional costs will be known before installation and calibration of the instrument.

TASK	TIME (hrs)
Installation Qualification: <ul style="list-style-type: none"> • Confirmation of eligibility for installation. • Determination of fuel sender parameters. • Validation of correct functionality of fuel senders required for installation. 	1.0
Aircraft Preparation for Installation and Calibration: <ul style="list-style-type: none"> • Setup and preparation. • Removal of existing fuel level indicators. 	1.0
Installation of FL-100-R Instrument <ul style="list-style-type: none"> • Perform the actual installation as noted in SECTION 2 of the installation manual. 	0.5
Instrument Calibration <ul style="list-style-type: none"> • Provided you have followed the procedures as outlined in this document you can budget the time taken for instrument calibration as 3 minutes X number of gallons of fuel indicated by the fuel senders. 	
Documentation and Testing <ul style="list-style-type: none"> • Post installation flight testing is not a requirement for aircraft return to service. Perform this function if your procedures require it. • Complete documentation as required. 	

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Installation Qualification

STEP 1

Review the STC AML and confirm that the aircraft type is eligible for installation. If it is not on the AML and you are not seeking a field approval then terminate the process at this point.

STEP 2

Confirm the **operating parameters** of the fuel senders. This procedure need only be carried out on ONE of the fuel senders. While aircraft data specifies the parameters for the fuel senders, we have found that in many cases the senders and/or fuel level instruments have been replaced with different products over the years. Performing this task will confirm this information beyond any doubt. There are two ways of performing this task. **Perform either procedure (1) or (2) below.**

1. Remove the fuel sender from the tank
 - a. Measure the resistance in the full position and note it in **BOX 1** on the checklist.
 - b. Measure the resistance in the empty position and note it in **BOX 2** on the checklist.
 - c. **NOTE:** For fuel tanks with multiple senders; these must be wired in series to provide an effective circuit as on Page 4 of the installation manual. Thus when reading resistances these values must be added in each condition for each sender.

OR

2. With the tank at full fuel capacity disconnect the existing fuel indicating instrument.
 - a. Measure the resistance of the sender from the connection point in the cockpit and note it in **BOX 1** on the checklist.
 - b. Drain the tank.
 - c. Add the unusable fuel.
 - d. Measure the resistance in "no usable fuel" condition and note it in **BOX 2** on the checklist.
 - e. **NOTE:** For fuel tanks with multiple senders; these must be wired in series to provide an effective circuit as on Page 4 of the installation manual. Thus when reading resistances these values must be added in each condition for each sender.

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STEP 3

If the maximum resistance of the sender was found to be at the point where the tank was full, write the letter **r** in **BOX 3** of the checklist.

If the maximum resistance of the sender was found to be at the point where the tank was empty, write the letter **n** in **BOX 3** of the checklist.

STEP 4

Using Table 1 confirm that you have the correct instrument to match your fuel senders. If the instrument is not the matching unit for your fuel senders call our Technical Support department (416-628-0725) for an RMA and to order the correct product.

Maximum Sender Resistance	FL-100 Model Required
44 Ω or less	FL-100-R (44)
45 Ω to 67 Ω	FL-100-R (67)
68 Ω to 109 Ω	FL-100-R (109)
110 Ω to 300 Ω	FL-100-R

Table 1

STEP 5

Confirm the correct operation of the fuel senders for **both LEFT and RIGHT tanks** as follows:

1. With the unusable fuel in the tank, read the resistance of the fuel sender. Note this value in **BOX 4** on the checklist.
2. Add one gallon of fuel to the tank.
3. Was there a change in resistance of at least 1.5 Ω for a sender qualified with the FL-100-R (0-300 Ω) instrument or at least 0.75 Ω for all other senders?
 - a. Yes. Then note this value in **BOX 5** on the checklist.
 - b. No. Repair or adjust the senders as necessary before continuing with the installation.
4. Add one more gallon of fuel (total 2 gallons) to the tank.
5. Was there a change in resistance of at least 1.5 Ω for a sender qualified with the FL-100-R (0-300 Ω) instrument or at least 0.75 Ω for all other senders?
 - a. Yes. Then note this value in **BOX 6** on the checklist.
 - b. No. Repair or adjust the senders as necessary before continuing with the installation.

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STEP 6

DO NOT CONTINUE WITH THE INSTALLATION OF THE FL-100-R INSTRUMENT UNTIL THE CONDITIONS OF STEP 5 HAVE BEEN MET.

Until the fuel senders are operating as noted, they are out of specification and do not meet the requirements of FAR 23 for operation, both for the FL-100-R instrument AND the existing instruments.

FAR 23, Subpart F, Section 23.1337, requirement (b) (1) states:

"Each fuel quantity indicator must be calibrated to read "zero" during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply determined under [Sec. 23.959(a);]"

The instrument will check this condition when installed and if the sender/s are not operating according to legal requirements, the software within the instrument will not allow it to be calibrated and thus it will not be legal for airborne use.

Aircraft Preparation for Installation and Calibration

Prepare the aircraft for installation and calibration of the instrument as follows:

STEP 7

Remove the existing fuel indicating instruments. The FL-100-R instrument is STC'd as a primary replacement. It will not work in conjunction with any other fuel indicating instrument. **Connection of the FL-100-R instrument without disconnecting the existing instruments will damage the electronic circuitry. Such damage is easily identified and is not covered under the product warranty.**

STEP 8

Install the instrument into the aircraft as per the **SECTION 2** of the manual.

STEP 9

Place the aircraft in a level flight attitude. For tricycle gear aircraft, bleeding a sufficient amount of air from the nose wheel will usually provide sufficient pitch angle adjustment. For conventional gear aircraft the tail wheel must be supported.

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STEP 10

Where necessary, support the aircraft wings using wing jacks or appropriate supports. This will almost always be required for high wing type aircraft and may only be required in some cases for low wing aircraft. Where time and costs allow, we recommend wing supports irrespective of the aircraft wing configuration.

STEP 11

Drain the fuel tanks if they are not empty.

STEP 12

Add the unusable fuel to each tank.

STEP 13

Prepare the necessary safety equipment for working with aircraft fuel. Plan an escape strategy in the event of fire and discuss this with all staff involved in the process or in the vicinity of the aircraft. Always work in a well vented area when working with fuel.

STEP 14

Complete the instrument calibration as per the supplied manual.

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TECHNICAL SUPPORT

We have dedicated technical support staff that are able to assist you in the installation and calibration of the instrument.

1. We provide support for:
 - a. All aspects of operation of the instrument.
 - b. Any task or question relating specifically to the FL-100-R series instruments.
 - c. Problem resolution beyond that stated in the manual but only as it relates to the instrument.

2. We do not provide support for:
 - a. The repair, calibration or setup of fuel senders.
 - b. Your specific aircraft electrical system.
 - c. Shop procedures.
 - d. Regulatory information other than information that pertains directly to the instrument.

3. Where the instrument is being installed in a certified aircraft, we reserve the right to provide support only to appropriately licensed individuals or licensed facilities where unlicensed individuals are working under direct supervision of an appropriately licensed person in accordance with the necessary regulations.

4. Product returns, whether for replacement due to defect or for refund, require Return Material Authorizations (RMA's).

**For Technical Support on this product call
416-628-0725**

Monday to Friday 9:00 a.m. to 5:00 p.m. EST

FL-100-R Installation Checklist – Page 1

#	TASK	OK	DATA						
1	STEP 1 : STC and AML eligibility								
2	STEP 2: Sender minimum and maximum resistances		<table border="1"> <tr> <td>BOX 1</td><td>BOX 2</td></tr> <tr> <td></td><td></td></tr> </table>	BOX 1	BOX 2				
BOX 1	BOX 2								
3	STEP 3: Sender orientation BOX 1 less than BOX 2; Place n in BOX 3 BOX 1 larger than BOX 2; Place r in BOX 3		<table border="1"> <tr> <td>BOX 3</td></tr> <tr> <td></td></tr> </table>	BOX 3					
BOX 3									
4	STEP 4: Matching instrument confirmation								
5	STEP 5: (FOR LEFT TANK) Sender resistance change confirmation		<table border="1"> <tr> <td>BOX 4</td><td></td></tr> <tr> <td>BOX 5</td><td></td></tr> <tr> <td>BOX 6</td><td></td></tr> </table>	BOX 4		BOX 5		BOX 6	
BOX 4									
BOX 5									
BOX 6									
6	STEP 5: (FOR RIGHT TANK) Sender resistance change confirmation		<table border="1"> <tr> <td>BOX 4</td><td></td></tr> <tr> <td>BOX 5</td><td></td></tr> <tr> <td>BOX 6</td><td></td></tr> </table>	BOX 4		BOX 5		BOX 6	
BOX 4									
BOX 5									
BOX 6									

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FL-100-R Installation Checklist – Page 2

#	TASK	OK	DATA
7	STEP 6 : Confirm operation of senders before continuing		
8	STEP 7: Remove existing fuel level indicators		
9	STEP 8: Install FL-100-R instrument		
10	STEP 9: Place the aircraft in a level flight attitude		
11	STEP 10: Support aircraft wings		
12	STEP 11: Drain fuel tanks		
13	STEP 12: Add unusable fuel to each tank		
14	STEP 13: Safety plan and working environment		
15	STEP 14: Calibration as per installation manual		
16	STEP 15: Documentation and regulatory signoff		

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FL-100-R Operations and Installation Manual

This manual is certified for use with
instrument serial number

ASL004667

Use of this manual with any other
instrument voids all warranties and may
result in damage to the instrument

THIS IS A TRANSPORT CANADA APPROVED MANUAL

Congratulations on the purchase of your FL-100 Dual Fuel Level Indicator. This instrument is a complex precision instrument manufactured to exceed Airborne Equipment Standards DO-160D, DO-178B and TSO C55 standards. In order for your instrument to function correctly you will need to review the instructions in this brief manual.

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SECTION 1

Introduction

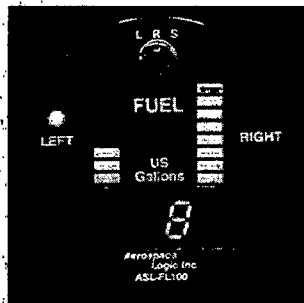
Your FL-100 Dual Fuel Level Indicator will provide you with years of reliable service and generally outlast the life of your aircraft. The instrument is constructed from the highest quality components and will provide a design life in excess of 100,000 hours.

It is the most reliable instrument of its kind. Gone are the days of questioning the accuracy or operation of the instrument. No stuck needles, erroneous readings or instruments that keep you guessing as to their operational status.

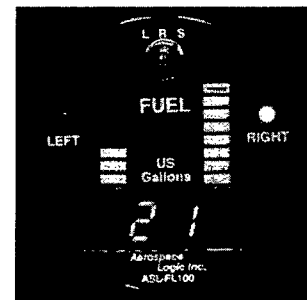
Every reading you will see displayed on your instrument has been validated 256 times before you see it. This all happens in less than a second. When you see the result you know the instrument is functioning correctly as it is monitored by an independent microprocessor just to insure that it is functioning correctly. In turn the main processor validates the independent monitoring processor. A failure detected in either processor will cause the instrument display to be turned off or an error message to be displayed, depending on the failure status.

Display

Under normal operations the main display of the instrument shows the status of both left and right tanks on the bar display, irrespective of the switch setting.



The lower four-digit seven-segment display provides a mathematically computed display of the selected parameters. The switch setting controls this display. When the switch is placed in the **L** position the **LEFT** LED indicator will be lit and the fuel quantity will be computed and displayed for the left tank. Likewise,



when the switch is placed in the **R** position the **RIGHT** LED indicator will be lit and the fuel quantity will be computed and displayed for the right tank.

Moving the switch momentarily to the **S** position will change the display option if applicable (See **SECTION 4 – Operation**).

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SECTION 2

Installation

The FL-100 will fit any standard 2 ¼" aircraft mounting hole. Place the instrument in the hole from the rear of the panel and then attach it with the four screws provided. If you need to replace the screws, ensure that the threads do not penetrate the instrument more than ½". Screws that penetrate the instrument further will cause severe damage to the instrument.

DISCONNECT ANY EXISTING FUEL INSTRUMENTS FROM THE FUEL SENDERS

This instrument will not work in conjunction with any other fuel indicating instruments.

Now connect the wiring as follows (See Page 4 for the Installation Schematic):

BLACK	Aircraft supply ground
RED	Master switched 14/28V bus (Instrument is internally fused)
ORANGE	Left tank sensor output
YELLOW	Right tank sensor output
BLUE	28V dimmer control (if required)
WHITE	14V dimmer control (if required)

**THIS IS THE MOST IMPORTANT STEP OF THE INSTALLATION
OMISSION OF THIS STEP VOIDS ANY AND ALL PRODUCT CERTIFICATIONS!**

Place the following placards within view of the pilot:

"Do not rely on indications from ANY fuel level instrument for flight safety"

AND

If the aircraft manufacturer has ANY limits or conditions associated with the original fuel gauge, they **MUST** be placed under this fuel gauge as well. Items such as minimum take-off capacities **MUST** be placarded.

Once installed your instrument will require setup and calibration before it may be commissioned for service.

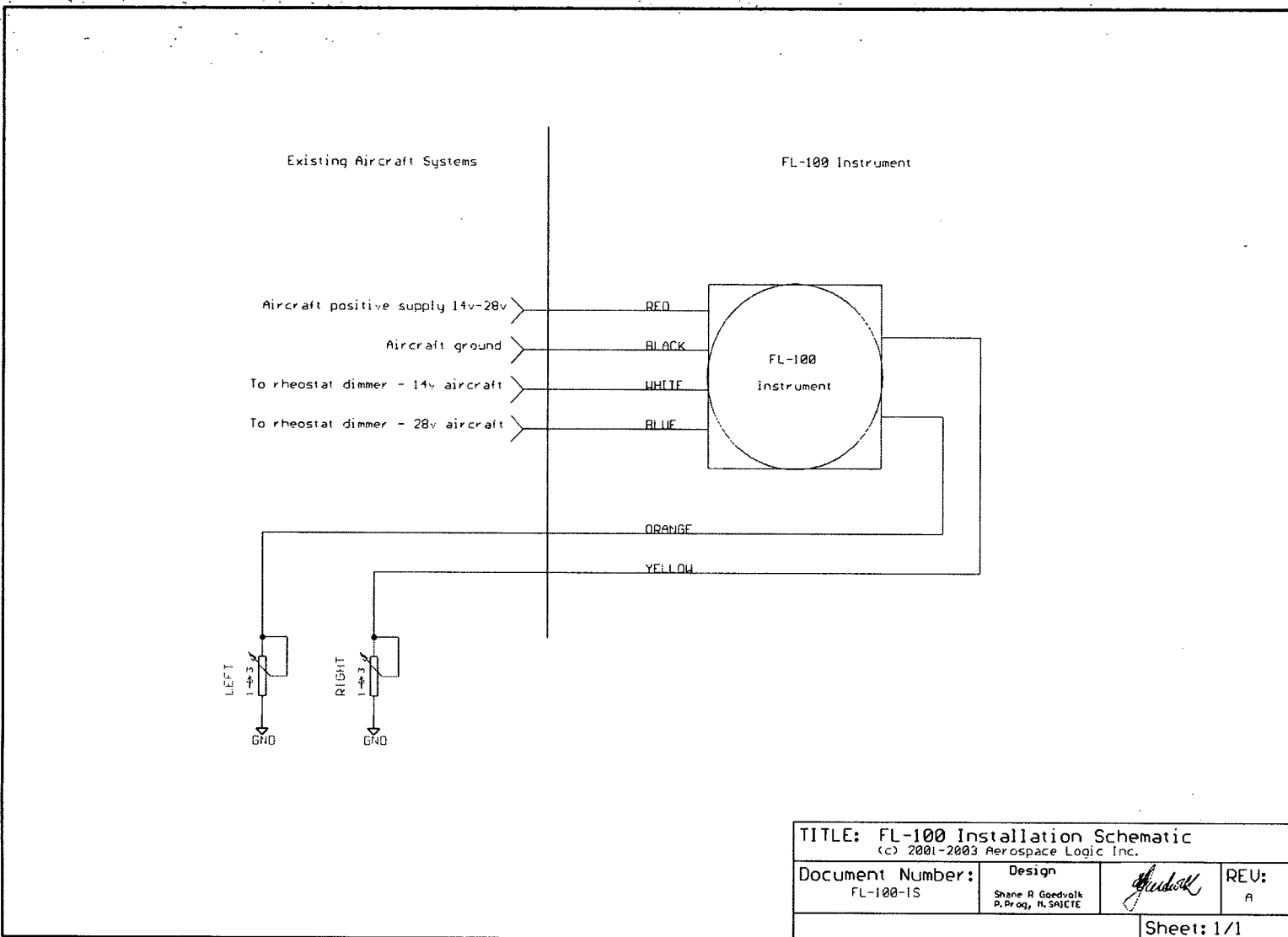
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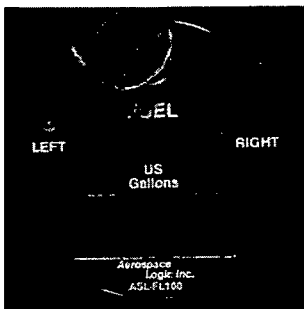
SECTION 3

Setup and Calibration

Instrument setup is only required when a parameter or display configuration is to be changed. With proper planning you should only have to perform this function once in the life of the instrument. All information is stored in the instruments lifetime memory which will be retained without power for up to 100 years.

NOTE: When in the setup mode the two left most characters will have decimal points displayed with the specific characters. The display bars as well as LEFT and RIGHT LED indicators will be off at all times during the setup process.

STEP 1

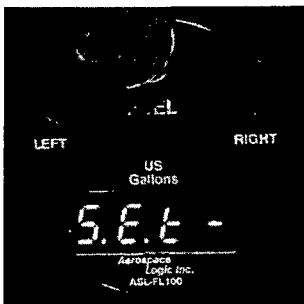


To enter the Setup mode turn off the power to the instrument.

Then press and hold the switch in the **S** position and turn on the power.

Do not release the **S** switch during this process.

STEP 2



When the "Set-" message is displayed release the **S** switch.

The display will now show one of the two displays as follows depending on the instrument **b**rightness control source.

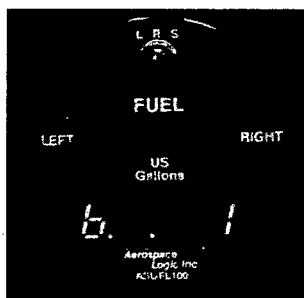
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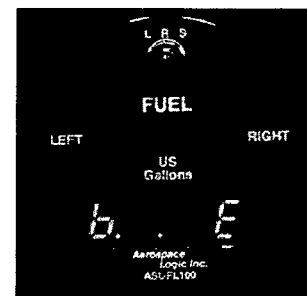
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STEP 3

The display will show either the **I**nternal or the **E**xternal setting depending on the previous selection.

By moving the switch between the **L** and **R** positions you can select the **b**rightness source for the control of the LED display.

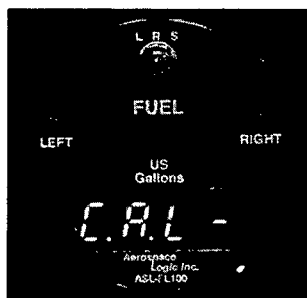


An **I**nternal setting allows the intensity of the instrument display to be controlled using the switch on the front of the instrument while an **E**xternal setting allows the intensity of the instrument to be controlled using the panel rheostat.

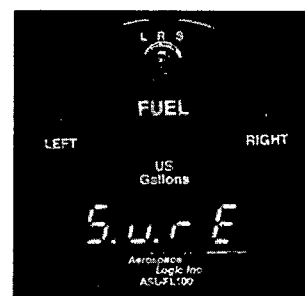
Once the correct value is displayed move the switch to the **S** position and then back to the **R** position.

STEP 4

The instrument will now display the following two screens with a pause of about 3 seconds between the first and the last.



First the **CAL-** message is displayed and the display will then wait for user input at the **SurE** message point.



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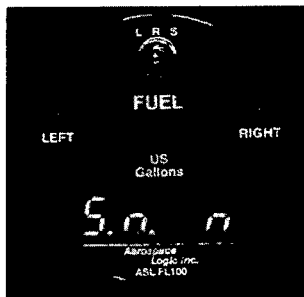
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STEP 5

? Do you want to perform the tank calibration at this point?

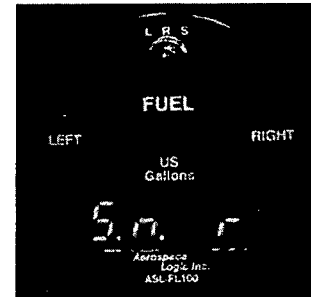
- **NO** I just want to return the instrument to normal operations after changing or viewing the intensity setting for the instrument
 - Then press the switch to the **S** position and release it. **Now proceed to SECTION 4 – Operation.**
- **YES** I want to perform the tank calibration for this instrument. I have completed the installation preparation as outlined in the **FL-100-R Installation Checklist and Guide as well as any applicable manufacturer guidelines.**
 - Then move the switch to the **L** position and return it to the **R** position.

STEP 6

The instrument will display either of these two options depending on the previous setting.

Now set the sender orientation

From the **FL-100-R Installation Checklist** select either **n** or **r** depending on the value in box #3.



You can change the setting from **n** to **r** and **r** to **n** by moving the switch to the **L** position and then back to the **R** position. Once the correct value is displayed move the switch to the **S** position and then back to the **R** position.

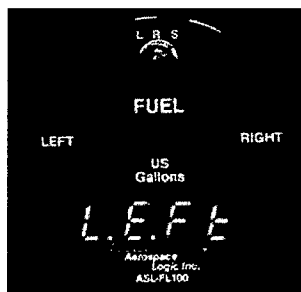
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STEP 7

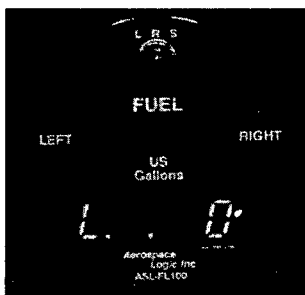
? Do you want to calibrate the LEFT tank at this time?

- **NO** I want to either calibrate the RIGHT tank or exit the calibration process.
 - Then move the switch to the **S** position and back to the **R** position. **Now proceed to the STEP 16 on Page 12 of this document**
- **YES** I want to calibrate the LEFT tank now. I have completed the installation preparation as outlined in the **FL-100-R Installation Checklist and Guide as well as any applicable manufacturer guidelines.**
 - Then move the switch to the **L** position and then back to the **R** position.

STEP 8

Now read BOTH STEP 8 and STEP 9 before performing them. Then perform STEP 8 and STEP 9.

YOU MUST HAVE YOUR CALIBRATION FORMS READY BEFORE CONTINUING (SECTION 5).



At this point you will allow the instrument to obtain the reference point where there is **no usable fuel in the tank.**

Ensure that only the **unusable** amount of fuel is in the tank.

Wait 20 seconds for the fuel to settle and then move the switch to the **S** position and back to the **R** position. Once the switch is in the **R** position the instrument will display one of the following:

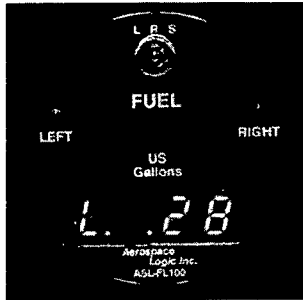
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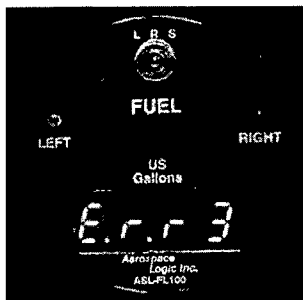
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STEP 9

A number preceded by the letter **L** that will be displayed for three seconds and then the **L..1** display as in **STEP 11**.

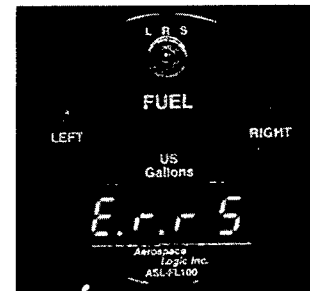
If you received this display then note this number on the calibration sheet for this tank. See **SECTION 5** (Page 16 or 17) or the enclosed copy of the calibration sheet and proceed to **STEP 11**.

If you did not receive this display proceed to **STEP 10**

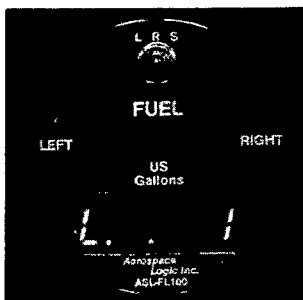
STEP 10

You received either an error message #3 or #5.

See **SECTION 6** to determine the cause of this error message. The instrument will return to the **L..0** display until you resolve the error condition.



If you have not completed the installation preparation as outlined in the **FL-100-R Installation Checklist and Guide** as well as any applicable manufacturer guidelines perform it before continuing with the calibration procedure. Do not continue this process until this has been done.

STEP 11

Now add one gallon of fuel to the tank.

Wait 20 seconds for the fuel to settle and move the switch to the **S** position and back to the **R** position.

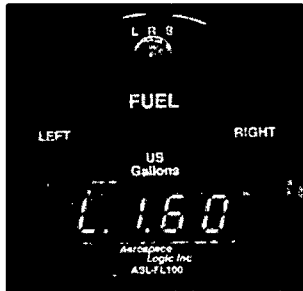
Once the switch is in the **R** position the instrument will display one of the following:

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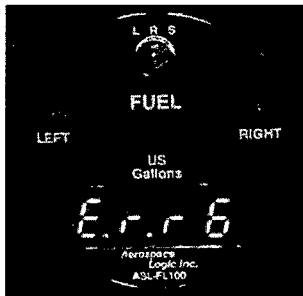
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STEP 12

A number preceded by the letter **L** that will be displayed for three seconds and then the **L..2** display as in **STEP 14**.

If you received this display then note this number on the calibration sheet from this tank. See **SECTION 5** (Page 16 or 17) or the enclosed copy of the calibration sheet and proceed to **STEP 14**.

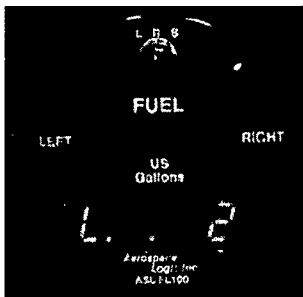
If you did not receive this display then proceed to **STEP 13**.

STEP 13

Error #6, #7 or #8.

If you received this display then see **SECTION 6** to determine the cause of this error message. The instrument will return to the **L..1** display until you resolve the error condition.

If you have not completed the installation preparation as outlined in the **FL-100-R Installation Checklist and Guide** as well as any applicable manufacturer guidelines perform it before continuing with the calibration procedure.

STEP 14

Now add one gallon of fuel to the tank.

Wait 20 seconds for the fuel to settle and move the switch to the **S** position and back to the **R** position.

Once the switch is in the **R** position the instrument will display the next fuel quantity level to calibrate after displaying the calibration value that you need to record, as in **STEP 12**.

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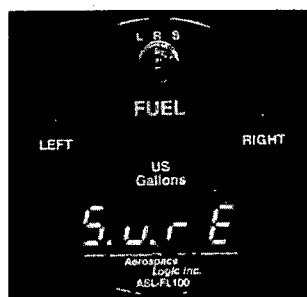
STEP 15

Repeat **STEP 12** to **STEP 15** until the first of the following occurs:

1. The tank is full; **OR**
2. The sender reaches the maximum quantity of fuel it will indicate.

When either of the above conditions is met AND an error #6, #7 or #8 is displayed perform the following:

Move the switch to the **L** position and then back to the **R** position. The display should now look like this:



If all the conditions of this step have been met and you have completed the calibration of this tank then move the switch to the **L** position and then back to the **R** position.

If you completed this step for the **LEFT** tank then continue with **STEP 16** of this process.

If you completed this step for the **RIGHT** tank then continue with **STEP 18** of this process.

If all the conditions of this step have **NOT** been met and you wish to continue with the calibration of this tank then move the switch to the **S** position and then back to the **R** position. The instrument calibration will continue at the last step that was not completed.

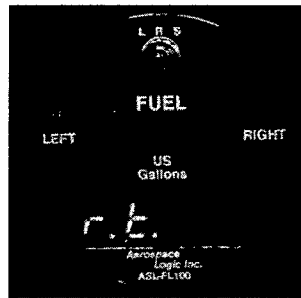
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STEP 16

? Do you want to calibrate the RIGHT tank at this time?

- **NO** I want to exit the calibration process.
 - *Then move the switch to the **S** position and back to the **R** position. **Now proceed to the STEP 18 of the Setup and Calibration process***
- **YES** I want to calibrate the RIGHT tank now. I have completed the installation preparation as outlined in the **FL-100-R Installation Checklist and Guide as well as any applicable manufacturer guidelines.**
 - *Then move the switch to the **L** position and then back to the **R** position.*

STEP 17

Now perform STEP 8 through STEP 15 for the right tank. The entire process is exactly the same except that the instrument will display the **r** character instead of the **L** character in the leftmost position of the digital display for all steps.

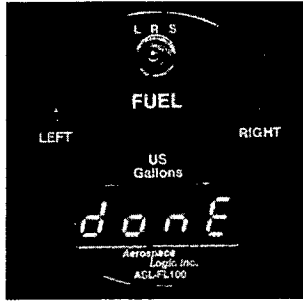
Once **STEP 15** has been completed for the RIGHT tank proceed to **STEP 18**.

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STEP 18

The text **done** will be briefly displayed on the instrument and it will then restart in the normal operation mode.

One of the following three conditions will be met at this point:

1. You have reviewed the calibration process without calibrating the instrument.
The instrument may not be commissioned for use at this point.
2. You have calibrated either the LEFT or RIGHT tanks and may return to the calibration process at later point to complete the calibration process for the remaining tank.
The instrument may not be commissioned for use at this point.
3. You have completed calibration of both tanks.
Once the necessary documentation has been completed the instrument may be placed in service.

WARNING: This instrument may only be commissioned for legal use once the calibration procedure has been completed on BOTH LEFT AND RIGHT tanks.

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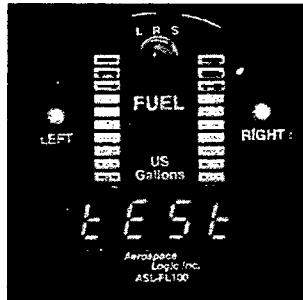
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SECTION 4

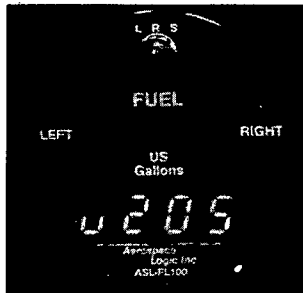
Operation

STEP 1: Power Up



Once power is applied to the instrument it will scroll the text **FL-100** through on the digital display.

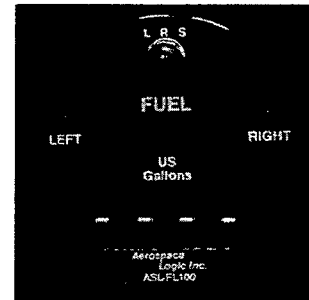
Then a **tEST** message will be displayed with all LED elements of the display lit.



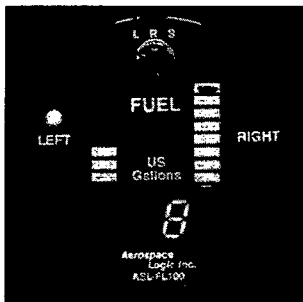
Next the software version will be displayed. For this instrument it must be v205.

Finally the instrument will display four dash characters on the digital display. This display will remain on the instrument while it initializes the first fuel level measurement. This may take

up to 20 seconds to complete. Once the initial fuel level is displayed the instrument is ready for use.

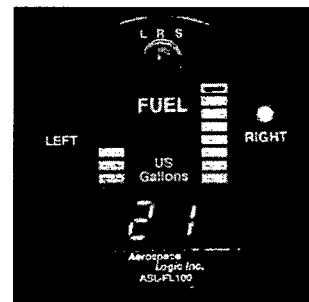


STEP 2: General Operation – Fuel Level Display



Move the switch to the **L** position to display the fuel quantity in the **LEFT** tank. At the same time the **LEFT** LED will light up indicating that the digital display contains the fuel quantity in the **LEFT** tank.

By moving the switch to the **R** position the display will show the fuel quantity in the **RIGHT** tank. At the same time the **RIGHT** LED will light up indicating that the fuel quantity indicated in the digital display is for that of the **RIGHT** tank.



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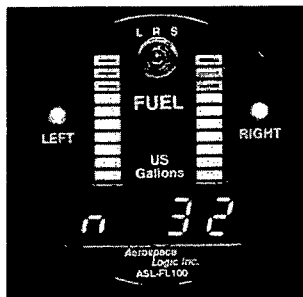
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STEP 3: General Operation – Display Intensity Control - External

If you set the intensity control to E (see **SECTION 3**) then the intensity of the instrument will be controlled by your panel rheostat.

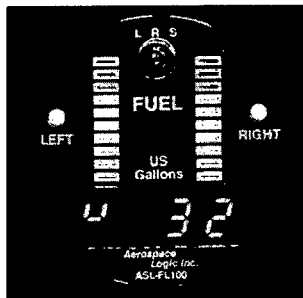
Furthermore, moving the switch to the **S** position in normal operations more will have no effect on the operation of the instrument.

STEP 4: General Operation – Display Intensity Control – Internal

By moving the switch to the **S** position while the instrument is displaying the fuel quantity the display will change as shown.

The **n** character indicates that the **increase intensity operation** has been selected. The instrument will default to intensity level 32 and will retain the last set intensity level as long as power is applied to the instrument. Intensity level ranges are from 0 to 255 where 0 is the lowest level of intensity and 255 the highest.

To increase the intensity of the instrument move the switch to the **L** position. When the desired intensity level has been reached move the switch back to the **R** position. If you do not wish to increase the instrument intensity or have reached the desired intensity level, move the switch to the **S** position and then back to the **R** position. If you do not press the switch, the display will return to the fuel quantity display after a few seconds.



If you moved the switch to the **S** position from the increase intensity mode the display will now be as shown.

The **u** character indicates that the **decrease intensity operation** has been selected. The instrument will default to intensity level 32 after power up and will retain the last set intensity level as long as power is applied to the instrument. Intensity level ranges are from 0 to 255 where 0 is the lowest level of intensity and 255 the highest.

To decrease the intensity of the instrument move the switch to the **L** position. When the desired intensity level has been reached move the switch back to the **R** position. If you do not wish to decrease the instrument intensity or have reached the desired intensity level, move the switch to the **S** position and then back to the **R** position. If you do not press the switch, the display will return to the fuel quantity display after a few seconds.

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SECTION 5
FL-100 Calibration Form (Left Tank)

Instrument Serial # _____

0		25		50		75	
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	

Calibrated By: _____

Date: _____

Aircraft Registration: _____

SECTION 5
FL-100 Calibration Form (Right Tank)

Instrument Serial # _____

0		25		50		75	
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	

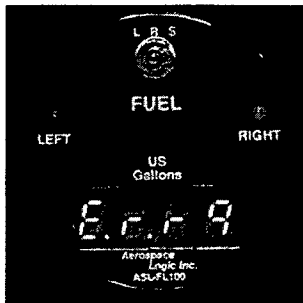
Calibrated By: _____

Date: _____

Aircraft Registration: _____

SECTION 6

Error Messages and Fault Resolution



During normal operations and the calibration process the instrument continually monitors operations to ensure that it operates in accordance with the necessary specifications.

While calibrating the instrument a number of parameters must be met in order for the instrument to be commissioned in an aircraft. This section will provide you with an identification of the error messages as well as possible problem resolutions. In all cases error messages are displayed as indicated to the left.

Error	Point of Occurrence	Resolution
1	Reserved	Contact our Technical Support department. You should never see this message.
2	Reserved	Contact our Technical Support department. You should never see this message.
3	L..0 or r..0 of the calibration process	<p>Cause: The fuel sender is not providing a valid indication of fuel for the zero fuel level. To qualify for installation into a certified aircraft the fuel sender must provide a valid zero fuel level indication to the instrument.</p> <p>Resolution (in order of probability):</p> <ol style="list-style-type: none"> 1. If you have not added the unusable fuel to the tank, do so now and return to the calibration process. 2. The fuel sender travel is not correctly set. Refer to the manufacturer documentation and correct the problem. 3. The fuel sender is defective. Replace it with a new or rebuilt unit. 4. If the sender orientation is set in the n mode check: <ol style="list-style-type: none"> a. for an open circuit condition between the instrument and the sender; b. that the sender is grounded; c. that the resistance specification of the sender matches that of the instrument.

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SECTION 6

Error Messages and Fault Resolution (Continued)

Error	Point of Occurrence	Resolution
4	Any time during normal operations or calibration	The instrument has detected an internal failure. Contact our Technical Support department for an RMA and shipment of a new instrument.
5	L..0 or r..0 of the calibration process	<p>Cause: The fuel sender is not providing a valid indication of fuel for the zero fuel level. To qualify for installation into a certified aircraft the fuel sender must provide a valid zero fuel level indication to the instrument.</p> <p>Resolution (in order of probability):</p> <ol style="list-style-type: none"> 1. If you have not added the unusable fuel to the tank do so now and return to the calibration process. 2. The fuel sender travel is not correctly set. Refer to the manufacturer documentation and correct the problem 3. The fuel sender is defective. Replace it with a new or rebuilt unit. 4. If the sender orientation is set in the r mode check: <ol style="list-style-type: none"> a. for an open circuit condition between the instrument and the sender; b. that the sender is grounded; c. that the resistance specification of the sender matches that of the instrument.

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SECTION 6

Error Messages and Fault Resolution (Continued)

Error	Point of Occurrence	Resolution
6	Any time AFTER L..0 or r..0	<p>Cause: The fuel sender output has not changed since the last calibration reading.</p> <p>Resolution (in order of probability):</p> <ol style="list-style-type: none"> 1. Did you add one gallon of fuel since the last calibration point? If not, do so now and continue with the process. 2. The fuel sender did not move with the addition of fuel: <ol style="list-style-type: none"> a. Is the fuel tank full? Go to SECTION 3 STEP 15 b. Has the fuel sender reached the maximum point of travel? <ol style="list-style-type: none"> i. If this point of travel is in agreement with the manufacturers stated travel then go to SECTION 3 STEP 15 ii. If this point of travel is not in agreement with the manufacturers stated travel then either adjust the sender or have it repaired. 3. If the fuel tank is not full, the sender has not reached the full point of travel and the sender has moved with the addition of fuel then the sender may be defective. Add up to two gallons of fuel in ¼ gallon increments checking to see if the error is cleared at each point. If the instrument allows progress to the next calibration step proceed with ¾ gallon increments until the additional fuel quantity has been compensated for. <p>If the error cannot be resolved within two gallons the sender must be repaired before continuing.</p>

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SECTION 6

Error Messages and Fault Resolution (Continued)

Error	Point of Occurrence	Resolution
7	Any time AFTER L..0 or r..0	<p>Cause: The fuel sender output has changed in the opposite orientation to that expected since the last calibration reading.</p> <p>Resolution (in order of probability):</p> <ol style="list-style-type: none"> 1. Is the sender orientation set correctly? See SECTION 3 STEP 6 2. Did you add one gallon of fuel since the last calibration point? If not, do so now and continue with the process. 3. Is the fuel tank full? Go to SECTION 3 STEP 15 4. Has the fuel sender reached the maximum point of travel? <ol style="list-style-type: none"> a. If this point of travel is in agreement with the manufacturers stated travel then go to SECTION 3 STEP 15 b. If this point of travel is not in agreement with the manufacturers stated travel then either adjust the sender or have it repaired. 5. If the fuel tank is not full, the sender has not reached the full point of travel and the sender has moved with the addition of fuel then the sender may be defective. Add up to two gallons of fuel in ¼ gallon increments checking to see if the error is removed at each point. If the instrument allows progress to the next calibration step proceed with ¾ gallon increments until the additional fuel quantity has been compensated for. <p>If the error cannot be resolved within two gallons the sender must be repaired before continuing.</p>

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SECTION 6

Error Messages and Fault Resolution (Continued)

Error	Point of Occurrence	Resolution										
8	Any time AFTER L..0 or r..0	<p>Cause: The fuel sender output exceeded the specified limits for the instrument.</p> <p>Resolution (in order of probability):</p> <ol style="list-style-type: none">1. Check that you have the correct instrument model for your sender: <table><tr><th>Maximum Sender Resistance</th><th>FL-100 Model Required</th></tr><tr><td>44 Ω</td><td>FL-100-R (44)</td></tr><tr><td>67 Ω</td><td>FL-100-R (67)</td></tr><tr><td>109 Ω</td><td>FL-100-R (109)</td></tr><tr><td>300 Ω</td><td>FL-100-R</td></tr></table> <ol style="list-style-type: none">2. Is the fuel tank full? Go to SECTION 3 STEP 153. Has the fuel sender reached the maximum point of travel?<ol style="list-style-type: none">a. If this point of travel is in agreement with the manufacturers stated travel then go to SECTION 3 STEP 15b. If this point of travel is not in agreement with the manufacturers stated travel then either adjust the sender or have it repaired.4. If the fuel tank is not full, the sender has not reached the full point of travel and the correct instrument model is being used then the sender is defective. The sender must be repaired before continuing.	Maximum Sender Resistance	FL-100 Model Required	44 Ω	FL-100-R (44)	67 Ω	FL-100-R (67)	109 Ω	FL-100-R (109)	300 Ω	FL-100-R
Maximum Sender Resistance	FL-100 Model Required											
44 Ω	FL-100-R (44)											
67 Ω	FL-100-R (67)											
109 Ω	FL-100-R (109)											
300 Ω	FL-100-R											
9	When the calibration process is ended	<p>Cause: The instrument must be calibrated for a minimum of 10 gallons of fuel.</p> <p>Resolution: Continue the calibration process until a minimum of 10 gallons is reached.</p>										

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SECTION 7

FL-100-R Specifications

<p>Dimensions:</p> <ul style="list-style-type: none"> • Fits standard 2.25" mounting hole • 2.45" X 2.45" X 1.6" • 2" viewing area • Weight: 8oz <p>Display</p> <ul style="list-style-type: none"> • Custom design color bar display • Multi-color sunlight visible • InGaAlPGaN LED technology • 100,000 hours operating life • Analog and digital readout of fuel levels <p>Ranges (per tank)</p> <ul style="list-style-type: none"> • Minimum 10 US Gallons • Maximum 99 US Gallons <p>Accuracy</p> <ul style="list-style-type: none"> • Better than 1% • Exceeds requirements of AS405 <p>Safety</p> <ul style="list-style-type: none"> • Color coded fuel level quantities • Low fuel level alarms • Dual processor monitoring with one second error shutoff • Internal over temperature shutoff • Floating point mathematical compensation for tank and sensor linearity • 256 times measurement validation before display • .25 second scan rate <p>Operating Temperature</p> <ul style="list-style-type: none"> • -15C to +55C • 5F to 131F <p>Power Consumption</p> <ul style="list-style-type: none"> • 450mA Max (daytime operation) • 60mA Min (nighttime operation) 	<p>Programmable Display</p> <ul style="list-style-type: none"> • Two brightness selection pages (internal intensity selection) <p>Intensity Control</p> <ul style="list-style-type: none"> • Programmable user option • External using standard rheostat type dimmer • Internal selection programmable from the front panel • 256 level of brightness <p>Linearity</p> <ul style="list-style-type: none"> • Programmable for each tank • One gallon increments • Sensor linearity compensation • Tank design linearity compensation • Performed only once <p>Operating Voltage</p> <ul style="list-style-type: none"> • 6V-32V DC <p>Sensors Supported</p> <ul style="list-style-type: none"> • <i>Resistive sensors of all types where:</i> • $R_{max} = 300 \text{ Ohms}$ • $R_{min} = 0 \text{ Ohms}$
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